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09/990,518	11/21/2001	Jeffrey Harold Yanof	PKR 2 0718	3075

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595 MINER ROAD
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EXAMINER	
ROY, BAISAKHI	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/990,518
Filing Date: November 21, 2001
Appellant(s): YANOF ET AL.

Thomas E. Kocovsky, Jr. (Reg. No. 28,383)
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 7/23/07 appealing from the Office action mailed 1/12/07.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,137,858	HORIUCHI	10-2000
5,271,576	LONN	8-1993

2002/0070970 WOOD et al. 6-2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1-5 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horiuchi in view of Lonn (5241576) and further in view of Wood et al. (2002/0070970).

Horiuchi discloses a radiation tomography system and method which obtains a plurality of varying thickness image slices including thin slices and combining said slices into thicker slices or combination of the thin and thick slices into thicker slices (fig. 6, 7, col. 7-8). Horiuchi teaches obtaining 7-mm and 3-mm slices and combining the slices to form 10-mm slices. Therefore the projection data sets for the two slices are added for each scan location and the same views in individual projection data sets are added. This addition generates projection data corresponding to the slice thickness of the combined two slices. The slices are displayed by the display device 68, which displays the plurality of tomographic images representing the 10-mm slices, the 3 and 7-mm slices.

Horiuchi teaches obtaining thicker 10-mm slices from the combination of thinner 3- and 7-mm slices and also teaches obtaining slices of varying thickness but does not explicitly teach obtaining thicker slices to have a thickness which is n times the first thickness, **where n is an integer**. In the same field of endeavor Lonn discloses a CT system and method directed to processing image slices of varying thickness where thin

1 mm slices are summed to form 4 mm thick slices (col. 3 lines 32-39) and therefore the thickness of the thick slice is a multiple of the thickness of the thin slice. It would have therefore been obvious to one of ordinary skill in the art to use the teaching by Lonn to modify the teaching by Horiuchi for the purpose of obtaining variable thickness slices and obtaining a desired number of images (col. 7 lines 49-53).

Horiuchi teaches displaying the images and slices but does not explicitly teach the use of multiple view ports. In the same field of endeavor Wood et al. teach a diagnostic medical imaging system and method to generate 2D image slices, data processor to combine said slices into a volumetric image, storage device for loading the image slices, and displaying said slices in various view ports such that the first image slices are displayed in a second view port, the second image slices are viewed in first view port, and a third view port containing a superimposed version containing relative locations of both first and second image slices as represented in the second and first view ports, respectively ([0043] [0046] [0055]). Wood et al. also teach obtaining thick slices with the use of the thick slice button [0064]. Wood et al. teach designating regions of interest by a reviewer ([0044] [0046-0047]). Wood et al. teach obtaining the images from a coronal, saggital, or multi-planar view ([0045]). The reference also teaches updating the display of the various view ports in response to changes made to one view port ([0046] [0088] [0091], claims 7-14). Wood et al. also teach detecting small objects or lesions on a particular slice, marking or projecting outlines of said objects, and highlighting or color coding to distinguish between objects ([0047] [0051-0055] [0060] [0065] [0095]). The multiple view ports in Wood can be used to display the thin slices,

the thick slices, and then the combined slices. It would have therefore been obvious to one of ordinary skill in the art to use the teaching by Wood et al. to modify the teaching by Horiuchi for the purpose of effectively displaying the slices of varying thickness in multiple view ports in one display and optimizing the speed and accuracy with which the end user can diagnose a case (Wood [0016]).

2. Claims 6-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horiuchi in view of Wood et al. Horiuchi discloses a radiation tomography system and method which obtains a plurality of varying thickness image slices including thin slices and combining said slices into thicker slices or combination of the thin and thick slices into thicker slices (fig. 6, 7, col. 7-8). Horiuchi teaches obtaining 7-mm and 3-mm slices and combining the slices to form 10-mm slices. Therefore the projection data sets for the two slices are added for each scan location and the same views in individual projection data sets are added. This addition generates projection data corresponding to the slice thickness of the combined two slices. The slices are displayed by the display device 68, which displays the plurality of tomographic images representing the 10-mm slices, the 3 and 7-mm slices.

Horiuchi teaches displaying the images and slices but does not explicitly teach the use of multiple view ports. In the same field of endeavor Wood et al. teach a diagnostic medical imaging system and method to generate 2D image slices, data processor to combine said slices into a volumetric image, storage device for loading the image slices, and displaying said slices in various view ports such that the first image slices are displayed in a second view port, the second image slices are viewed in first

view port, and a third view port containing a superimposed version containing relative locations of both first and second image slices as represented in the second and first view ports, respectively ([0043] [0046] [0055]). Wood et al. also teach obtaining thick slices with the use of the thick slicebutton [0064]. Wood et al. teach designating regions of interest by a reviewer ([0044] [0046-0047]). Wood et al. teach obtaining the images from a coronal, saggital, or multi-planar view ([0045]). The reference also teaches updating the display of the various view ports in response to changes made to one view port ([0046] [0088] [0091], claims 7-14). Wood et al. also teach detecting small objects or lesions on a particular slice, marking or projecting outlines of said objects, and highlighting or color coding to distinguish between objects ([0047] [0051-0055] [0060] [0065] [0095]). The multiple view ports in Wood can be used to display the thin slices, the thick slices, and then the combined slices. It would have therefore been obvious to one of ordinary skill in the art to use the teaching by Wood et al. to modify the teaching by Horiuchi for the purpose of effectively displaying the slices of varying thickness in multiple view ports in one display and optimizing the speed and accuracy with which the end user can diagnose a case (Wood [0016]).

(10) Response to Argument

A. Rejection of Claims 1-5 and 20 Under 35 U.S.C. 103 (a) over Horiuchi as modified by Lonn, and further modified by Wood.

The Appellant argues that with respect to obtaining contiguous slices, Horiuchi clearly states obtaining contiguous slices or a contiguous scan of the entire lung with thick and thin slices (col. 1 lines 43-49, col. 6 lines 61-67, col. 7 lines 28-30). Horiuchi

clearly teaches combining two adjacent slices in the thickness direction (col. 5 lines 31-col. 6 line 17). Horiuchi also clearly teaches obtaining 7-mm and 3-mm slices in parallel and then these thin slices are combined to form the thicker 10-mm slices (col. 7 lines 1-9). The claim is directed to combining thin slices to form thicker slices and the reference is directed to meeting this limitation. Furthermore, Horiuchi teaches obtaining a plurality of tomographic images of the 10-mm slices representing a plurality of slices which are contiguous in the slice thickness direction and images corresponding to the 7- and 3-mm slices (col. 7 lines 28-35). Therefore images representing the thinner 7- and 3-mm slices are combined to generate images representing the thicker 10-mm slices. Horiuchi teaches producing a tomographic images with varying levels of slice thickness corresponding to the thickness of the radiation beam based on the projection data where a plurality of slices which differ in slice thickness can be imaged at a time. The tomographic images of the slices is based on projection data from two unequal parts and therefore a combination of the two different slices of different thickness to generate a thick slice. Therefore Horiuchi clearly teaches displaying the entire lung field contiguously as represented by the 10-mm slices. Furthermore, Lonn also teaches combining a set of contiguous thin slices to form thicker slices of a thickness, which is n times the thickness of the thin slices, where n is an integer (col. 3 lines 1-45). Horiuchi and Lonn do not explicitly teach the use of multiple view ports for display of the thin and thick slices. Wood et al. clearly teach the use multiple view ports for the display of the thick and thin slices with first, second, and third displays for each set of sections or slices [0043-0046]. Therefore the combination of the references clearly teaches a

medical imaging system generating a plurality of first image slices with a first thickness, combining the contiguous first image slices to generate a plurality of second image slices having a second thickness greater than the first thickness, where the second image slices correspond to a second thickness which is n times the first thickness, where n is an integer and further a display with a plurality of view ports for displaying the image slices.

B. Rejection of Claim 6-18 Under 35 U.S.C. 103 (a) over Horiuchi as modified by Wood.

The Appellant argues that Horiuchi does not combine images, combining n thinner images to generate a thicker image. Horiuchi clearly states obtaining contiguous slices or a contiguous scan of the entire lung with thick and thin slices (col. 1 lines 43-49, col. 6 lines 61-67, col. 7 lines 28-30). Horiuchi clearly teaches combining two adjacent slices in the thickness direction (col. 5 lines 31-col. 6 line 17). Horiuchi also clearly teaches obtaining 7-mm and 3-mm slices in parallel and then these thin slices are combined to form the thicker 10-mm slices (col. 7 lines 1-9). The claim is directed to combining thin slices to form thicker slices and the reference is directed to meeting this limitation. Furthermore, Horiuchi teaches obtaining a plurality of tomographic images of the 10-mm slices representing a plurality of slices which are contiguous in the slice thickness direction and images corresponding to the 7- and 3-mm slices (col. 7 lines 28-35). Therefore images representing the thinner 7- and 3-mm slices are combined to generate images representing the thicker 10-mm slices. Horiuchi teaches producing tomographic images with varying levels of slice thickness

corresponding to the thickness of the radiation beam based on the projection data, where a plurality of slices which differ in slice thickness can be imaged at a time. The tomographic images of the slices is based on projection data from two unequal parts and therefore a combination of the two different slices of different thickness to generate a thick slice. Therefore Horiuchi clearly teaches displaying the entire lung field contiguously as represented by the 10-mm slices. Horiuchi does not explicitly teach the use of multiple view ports for display of the thin and thick slices. Wood et al. clearly teach the use multiple view ports for the display of the thick and thin slices with first, second, and third displays for each set of sections or slices [0043-0046]. Therefore the combination of the references clearly teaches a medical imaging system generating a plurality of first image slices with a first thickness, combining the contiguous first image slices to generate a plurality of second image slices having a second thickness greater than the first thickness, where the second image slices correspond to a second thickness which is n times the first thickness, where n is an integer and further a display with a plurality of view ports for displaying the image slices.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Baisakhi Roy BR

Art Unit 3737

Conferees:

Angela Sykes

SPE, Art Unit 3762

Eleni Mantis Mercader

SPE, Art Unit 3768